Aircraft Mishap Investigation Prevention Course

SITUATIONAL AWARNESS

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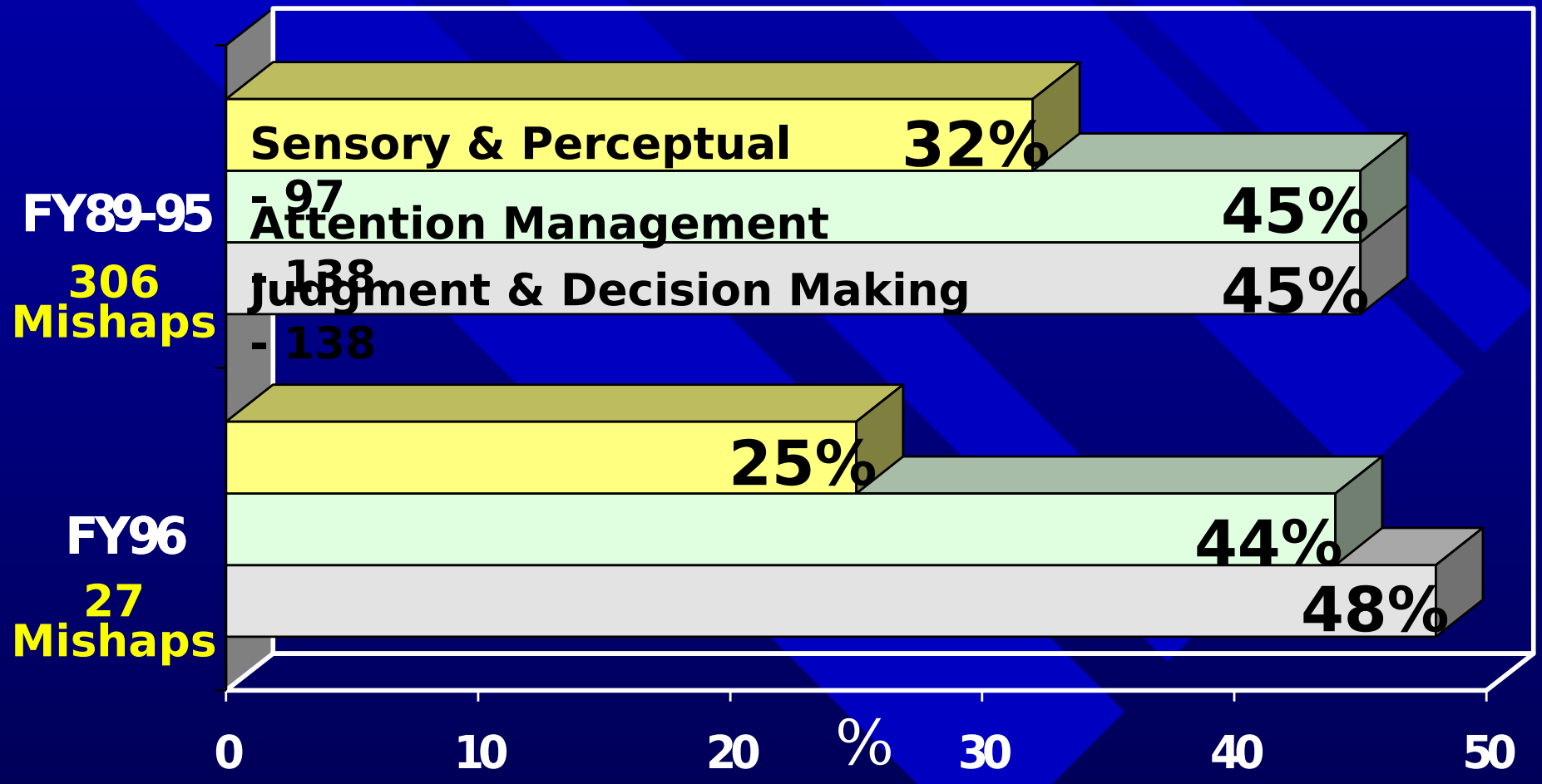
Major Individual Human Factor Areas in Mishaps

(percent as major or causal contributor)



LOSS OF SITUATIONAL AWARENESS

- THE NUMBER 1 HUMAN FACTOR IN CLASS A OPS MISHAPS!

SITUATIONAL AWARENESS

*"A continuous **perception** of self and aircraft in relation to the dynamic **environment** in flight, threats, and mission, and the capability to **forecast**, then execute tasks based on perception."*

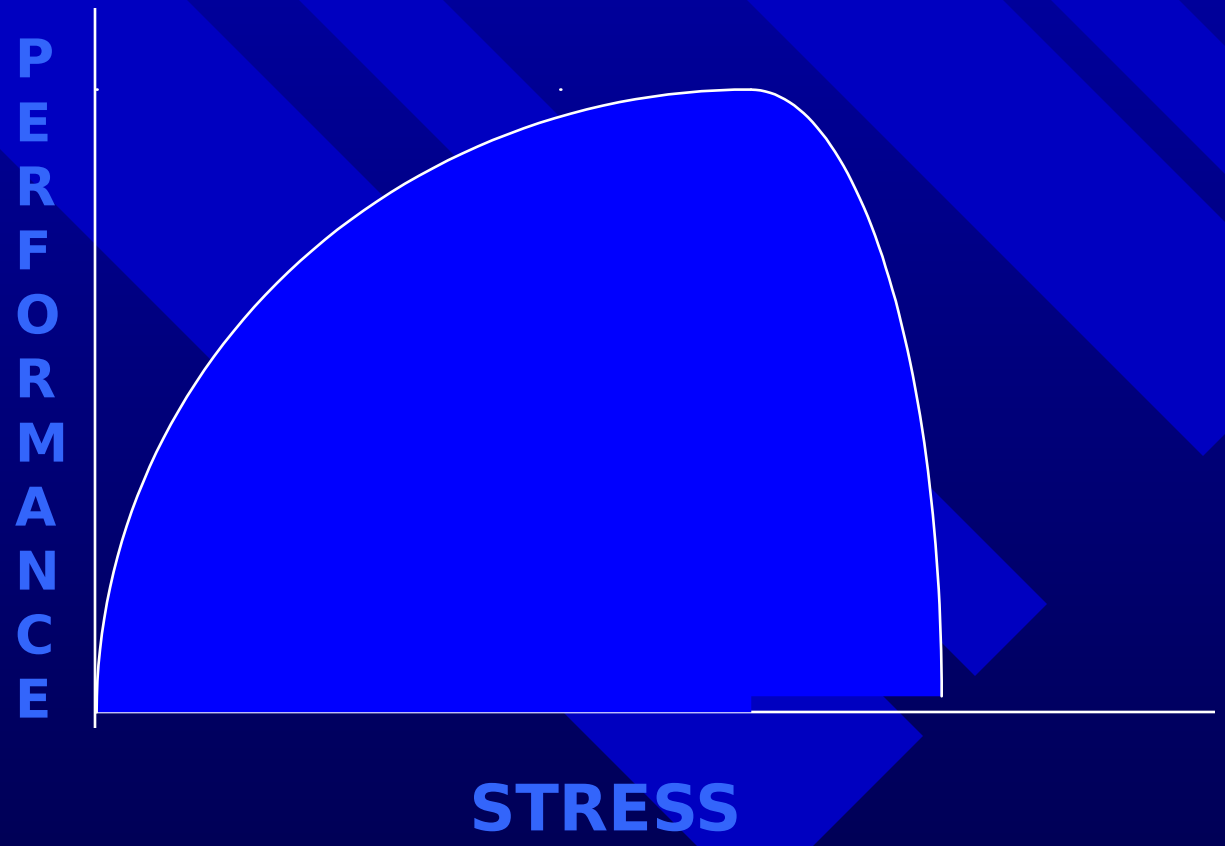
AF/XO

SITUATIONAL AWARENESS

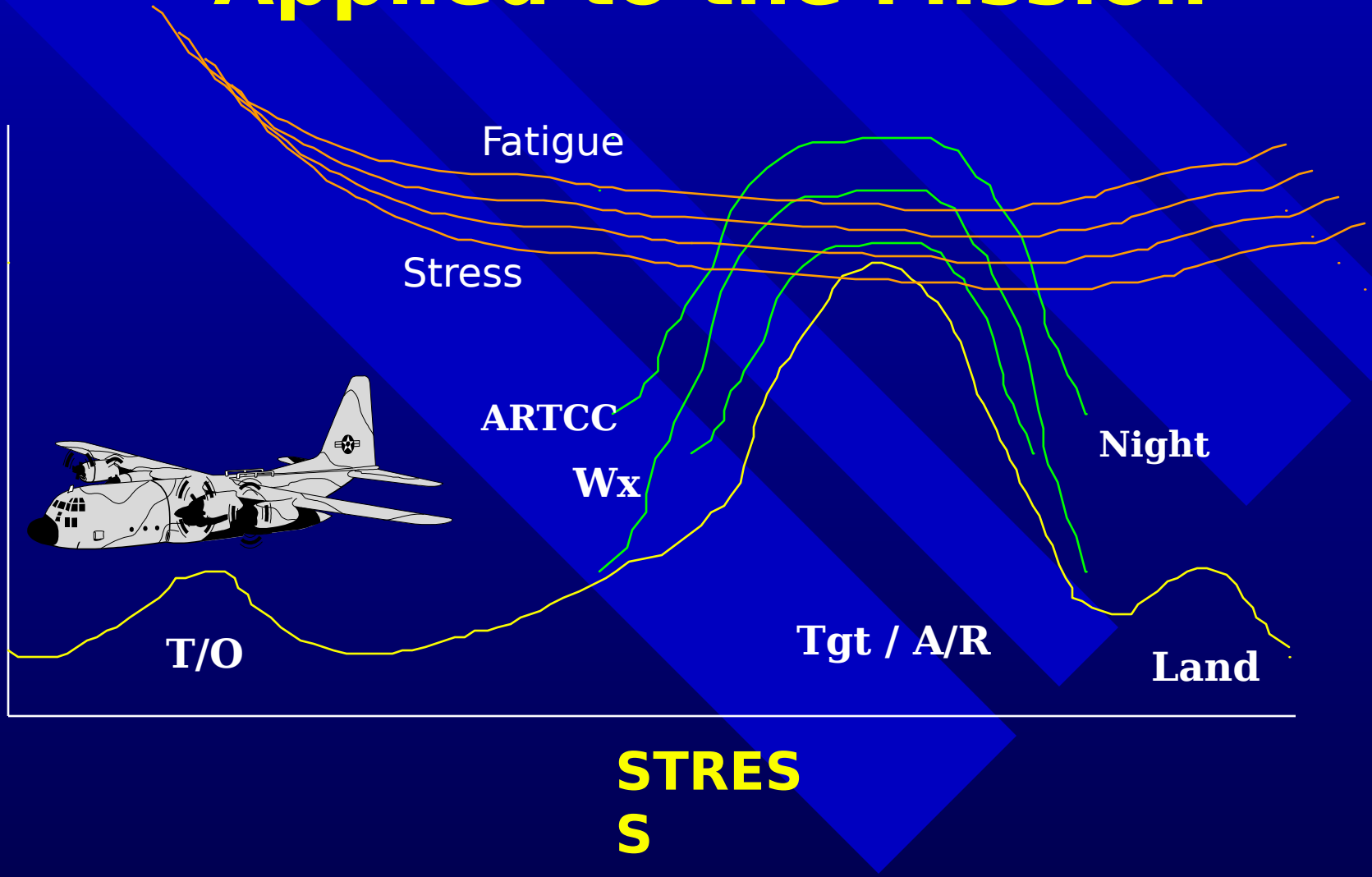
- KNOWING WHAT'S HAPPENING, KNOWING WHAT COULD HAPPEN, AND KNOWING WHAT TO DO IF WHAT COULD HAPPEN DID HAPPEN.

Col John Graham

STRESS/PERFORMANCE CURVE

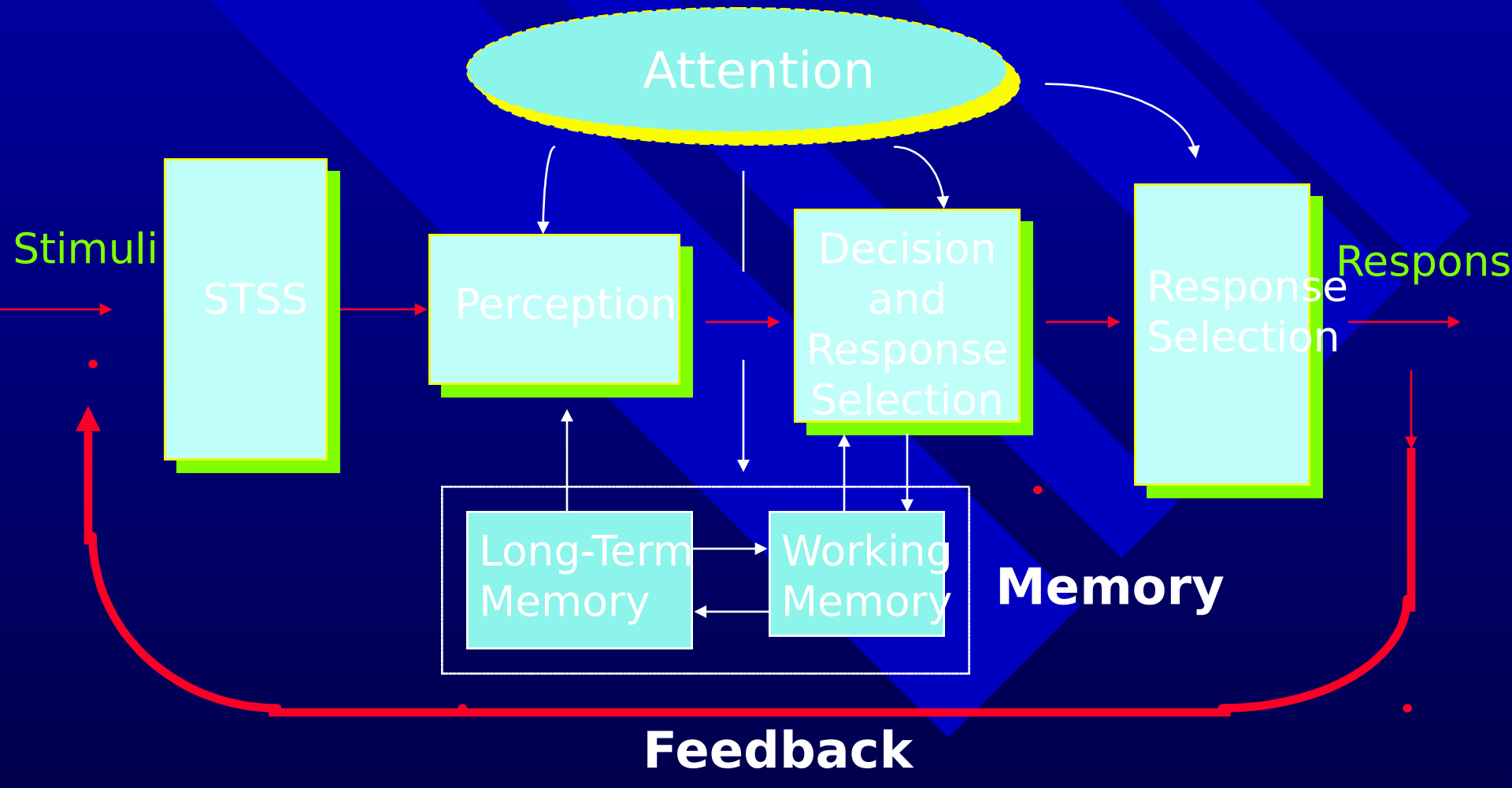


STRESS/PERFORMANCE CURVE Applied to the Mission



Human Information Processing Model

(Wickens, 1984)



Perception

The window through which you view the world

Holistic Perception

- The whole rather than elements
  - Use fuzzy logic
- Top-down processing
- Object perception - surrounding contours, attributes, familiarity
- Pictures tell a thousand words

Holistic Perception Example

SCIEN[redacted]

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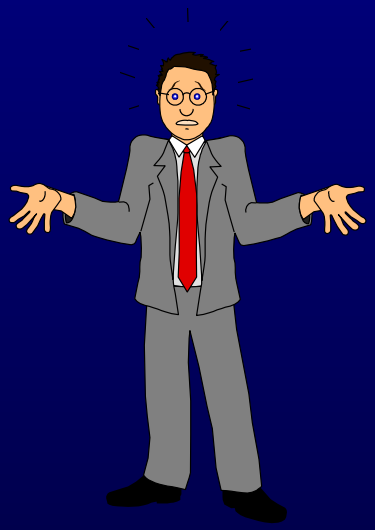

Holistic Perception Example

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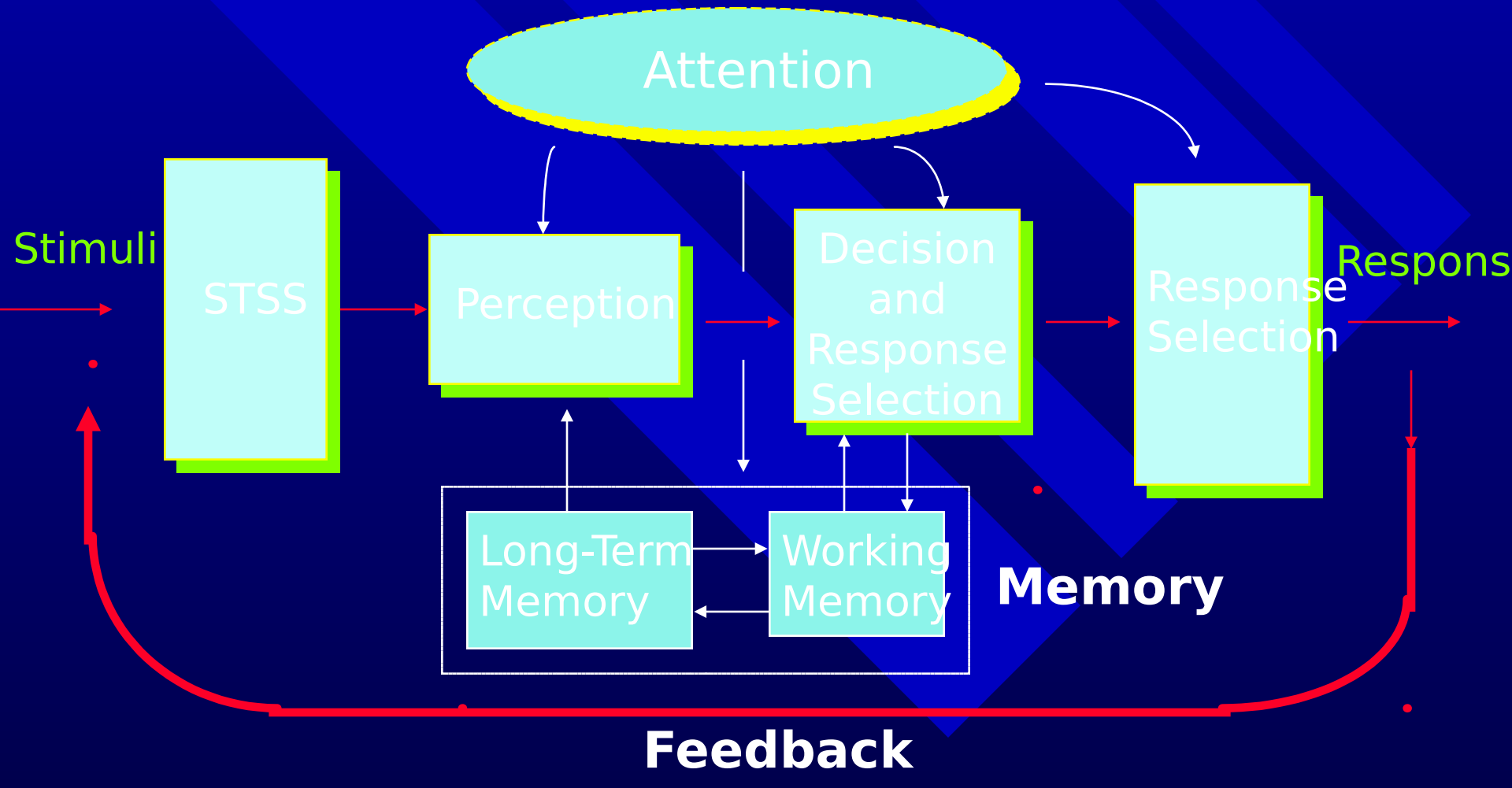
Human Information Processing Model

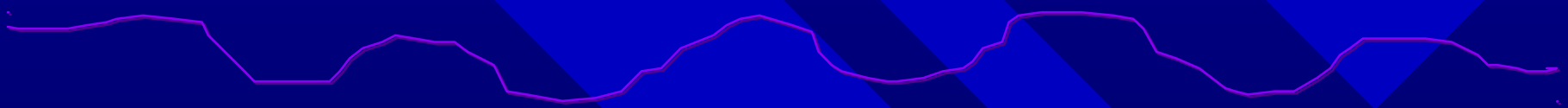
(Wickens, 1984)



Conscious Vs Subconscious Processing

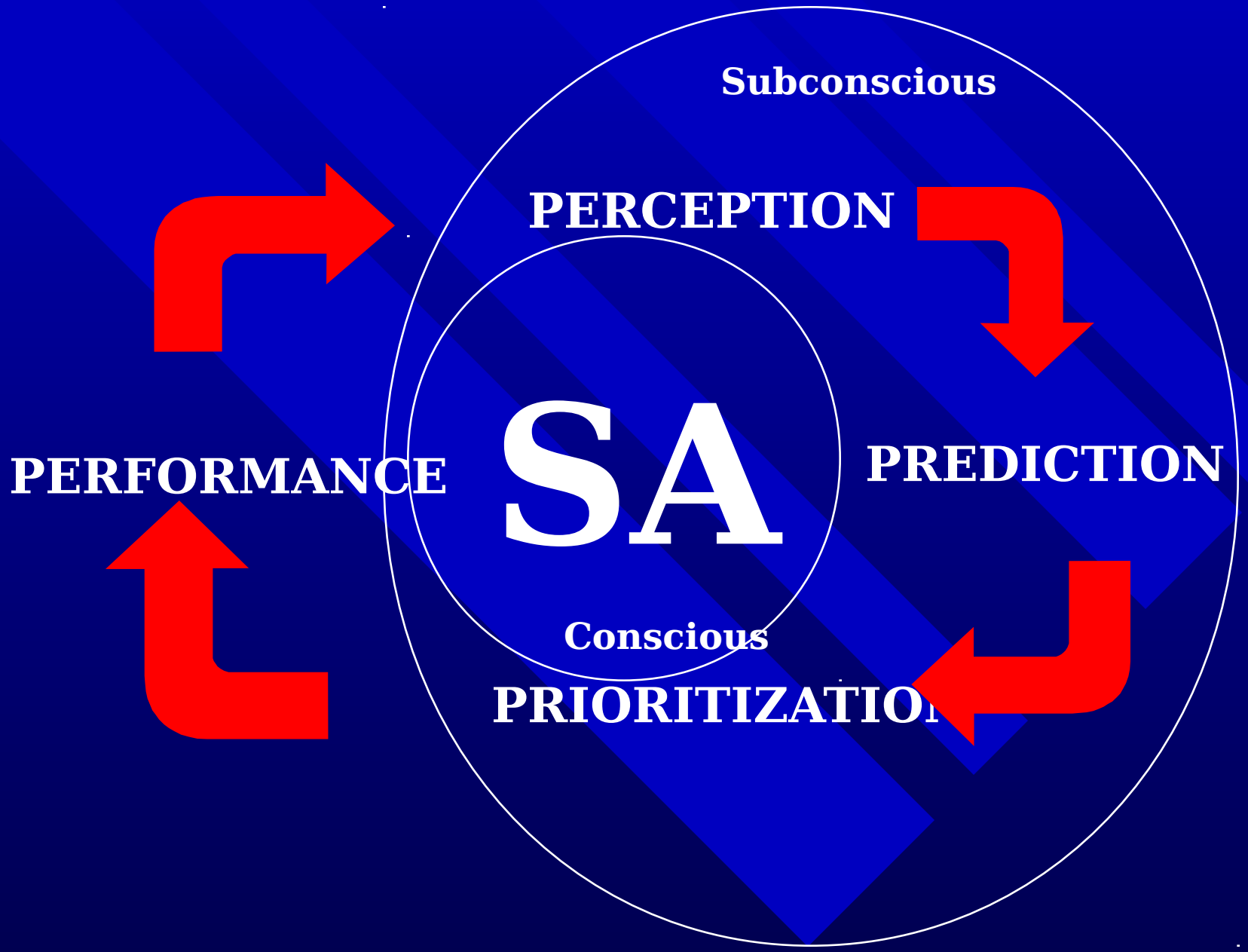
Conscious

Serial Accurate Slow Attention



Parallel Inaccurate Fast Inattenti

Subconscious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PERCEPTION
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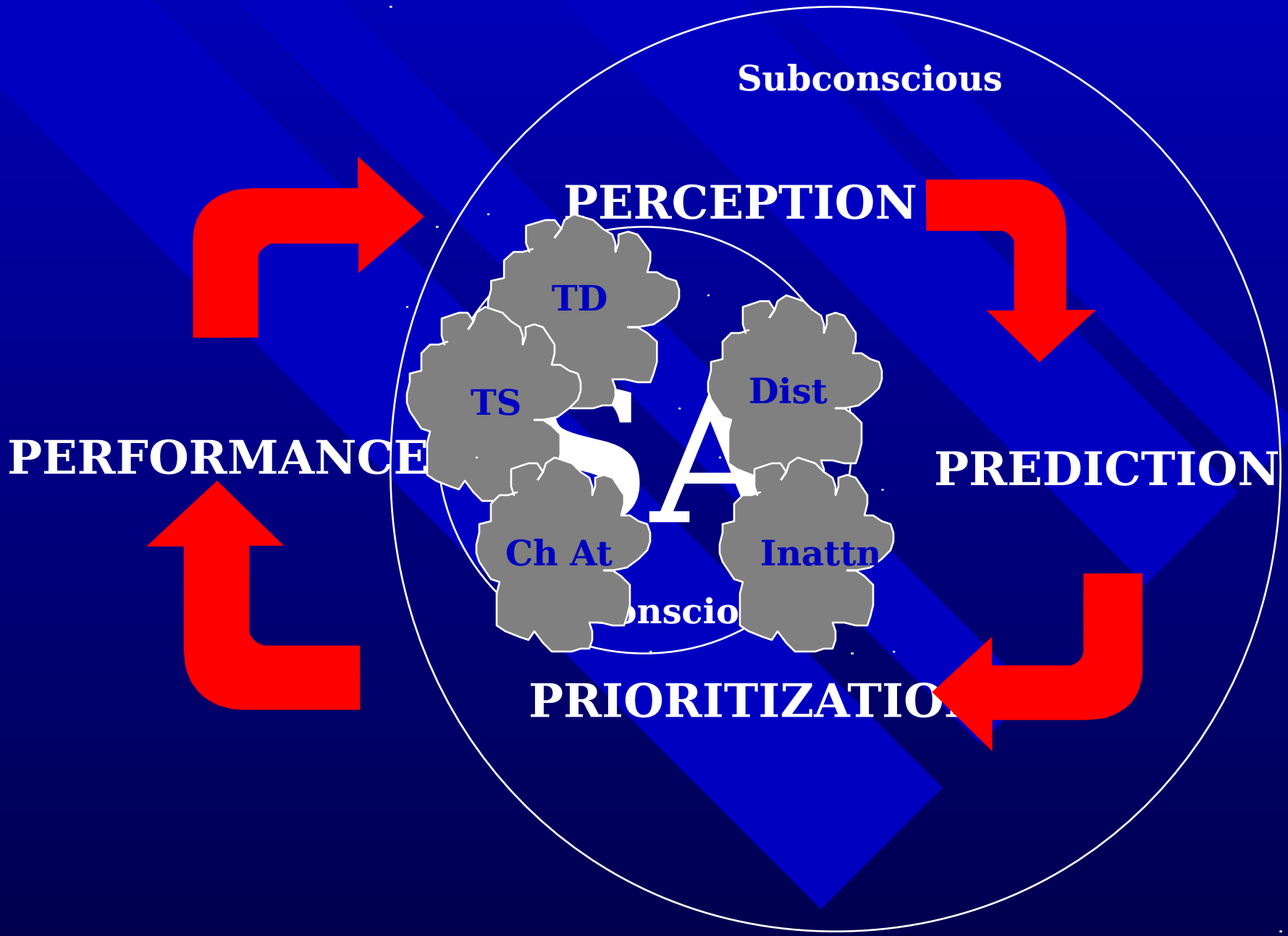
PREDICTION
Conscious
PRIORITIZATION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CAUSES & FACTORS

- CHANNELIZED ATTENTION
- DISTRACTION
- TASK SATURATION
- INATTENTION
- HABITUATION
- NEGATIVE TRANSFER
- TEMPORAL DISTORTION

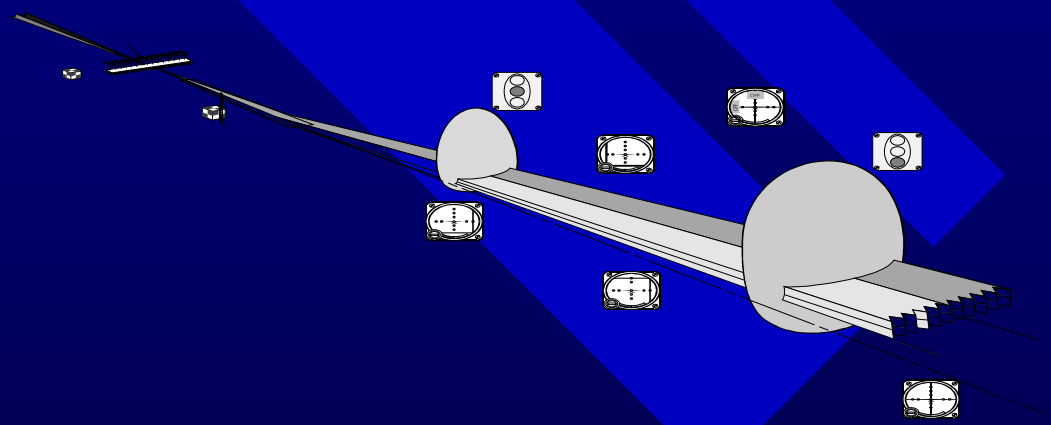
CHANNELIZED ATTENTION

- FOCUSING OF CONSCIOUS ATTENTION ON A LIMITED NUMBER OF ENVIRONMENTAL CUES TO THE EXCLUSION OF OTHERS OF HIGHER OF MORE IMMEDIATE PRIORITY.

NUMBER ONE HUMAN FACTOR IN LOSS OF SITUATIONAL AWARENESS MISHAPS.

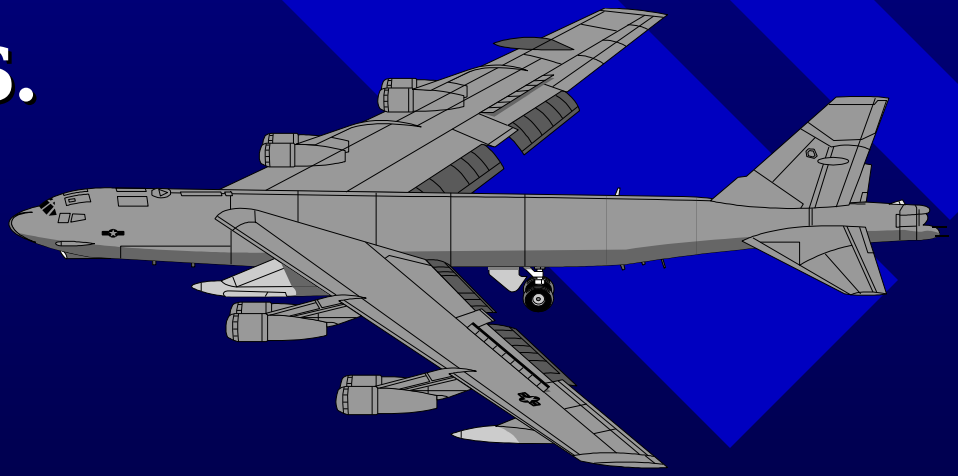
DISTRACTION

- INTERRUPTION OF CONSCIOUS ATTENTION TO A TASK BY A NON-TASK RELATED ENVIRONMENTAL CUE



TASK SATURATION

- A PERSON HAS TOO MUCH TO ATTEND TO AT ONE TIME, THUS MISSING POSSIBLY IMPORTANT CLUES.



INATTENTION

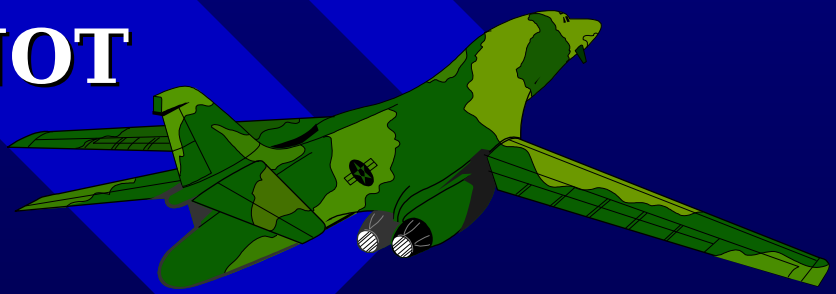
- APPROPRIATE LEVEL OF ATTENTION NEVER DEVOTED TO THE TASK

HABITUATION

- BECOMING USE TO A CUE AFTER PROLONGED EXPOSURE SO THAT IT IS NO LONGER ATTENDED

NEGATIVE TRANSFER

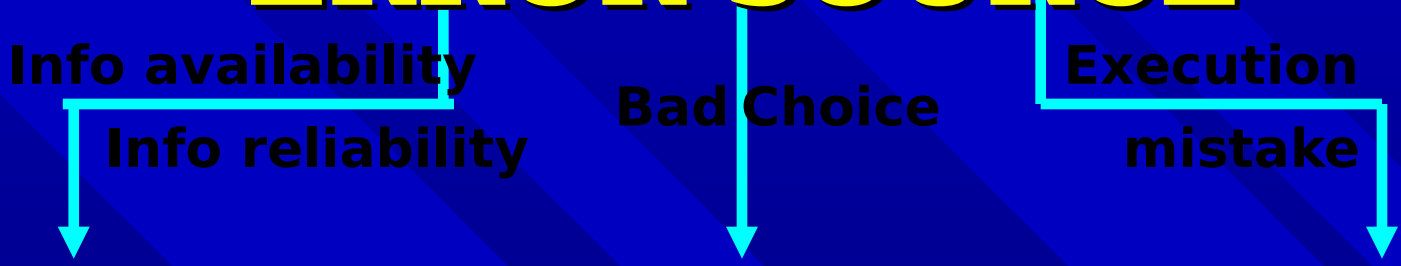
- SOMETHING IS LEARNED SO WELL THAT IT IS PERFORMED AT A SUBCONSCIOUS LEVEL. IN A NEW OR DIFFERENT SITUATION, THE OLD RESPONSE IS NOT APPROPRIATE.



TEMPORAL DISTORTION

- INABILITY TO ACCURATELY JUDGE THE PASSAGE OF TIME
- NORMAL RESPONSE TO STRESS OR HIGH WORKLOAD
- CROSSCHECK FREQUENCY
- EJECTION DECISION

SITUATIONAL AWARENESS ERROR SOURCE



INPUT ERRORS

1. Information not available or incorrect
2. Misinterpreted good information
3. Misprioritized good information
4. Attention problems
   a. Inattention
   b. Distraction
   c. Channelized attention
   d. Task saturation

DECISION ERRORS

1. Bad decision criteria
2. Lack of knowledge
3. Misunderstood plan
4. Planned beyond ability
5. Lack of will to participate

OUTPUT ERRORS

1. Inexperience
2. A “screw-up”
   a. Lack of recent experience
   b. Inattention to indicators
3. Misinterpretation of follow-on informatio after execution star
   a. Input errors
   b. Decision errors

The Classic NTSB Mishap

- Professional (Doctor, Lawyer, etc..)
- Business Partners or Family onboard
- Flying in WX where they shouldn’t be
- Exceed the capabilities of pilot or plane

Being Instrument Rated doesn’t mean you can fly into ANY ki

Remember the WX limitations of your aircraft…..Ice…Cross w

Involve your loca Physiologist

We can help

Break
Time!
!!